



USAutomation VersaDrive™ leadscrew step motors are the most versatile linear positioning motors on the market. They are available in thru-screw and fixed screw versions with a variety of drive nut and support bushing options. VersaDrive motors are robust and can be easily configured to solve the most difficult application problems. Integration of a leadscrew with a motor saves space, eliminates components, and reduces cost. While many standard configurations are available, custom modifications for OEM customers are welcome.

FEATURES:

- Three sizes - NEMA 11, 17 and 23
- Selection of motor windings
- Selection of screw leads
- Anti-backlash, self-compensating nut option
- Unique centering bushing option
- Optional cover only on shaft extension
- Nuts and bushings can be mounted on either front or back of motor
- Motor can be full, half or microstepped

BENEFITS:

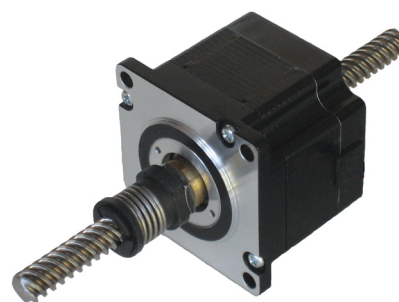
- Wide range of forces and speeds
- Choice of winding best matched to drive
- Wide range of positioning resolutions
- Zero backlash operation (no axial play)
- Eliminate radial play, reduce noise
- Protect shaft and cosmetically enhance
- Versatility to configure drive nuts and centering bushing most ideal for each individual application
- Potential for very high linear positioning resolutions



VersaDrive 11



VersaDrive 17



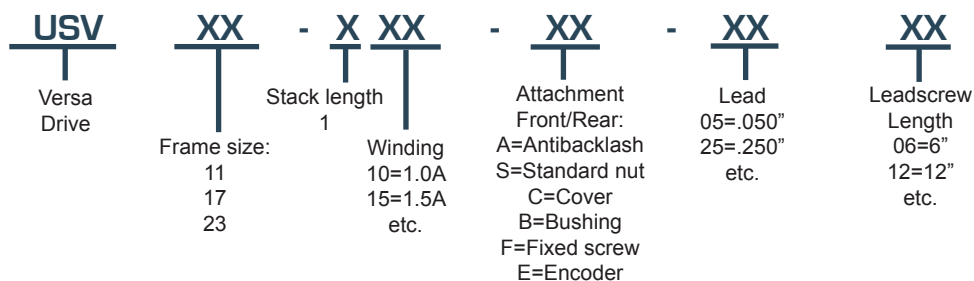
VersaDrive 23



SPECIFICATIONS

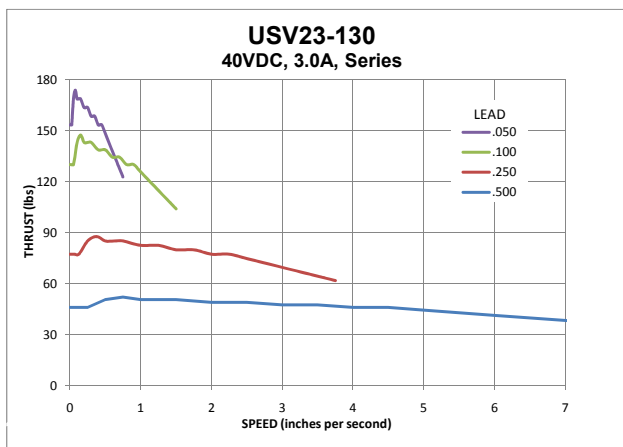
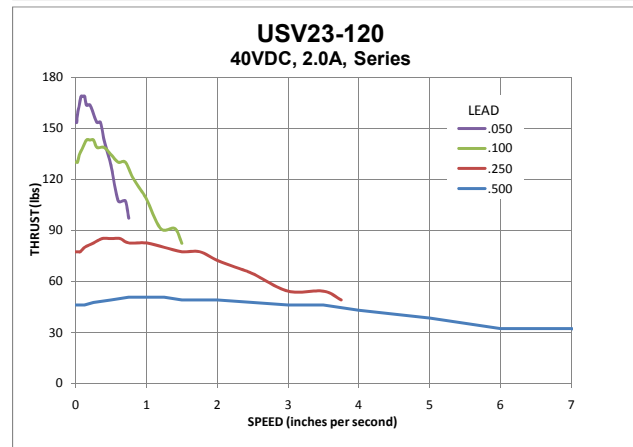
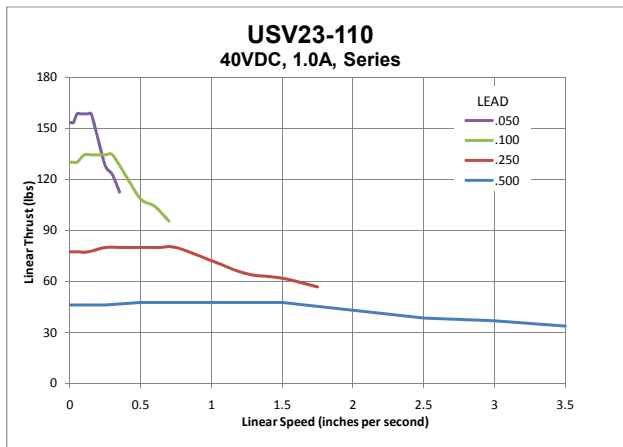
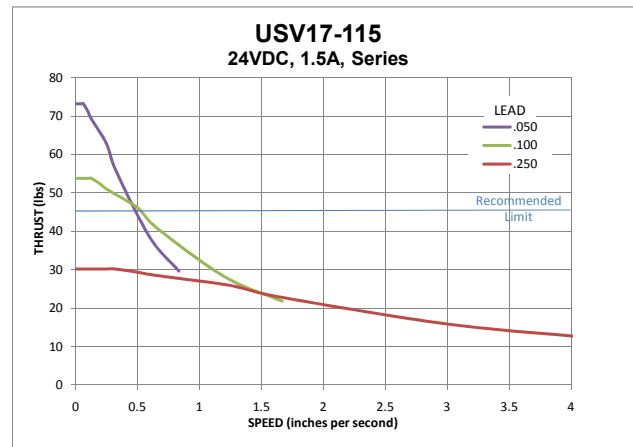
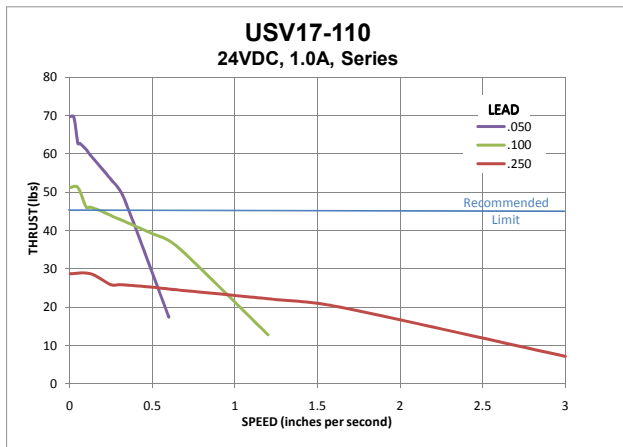
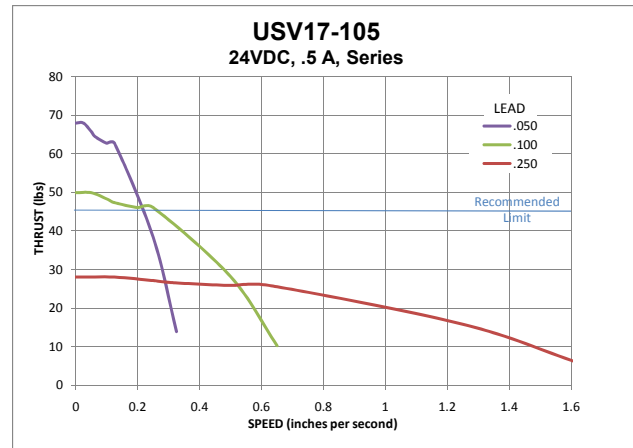
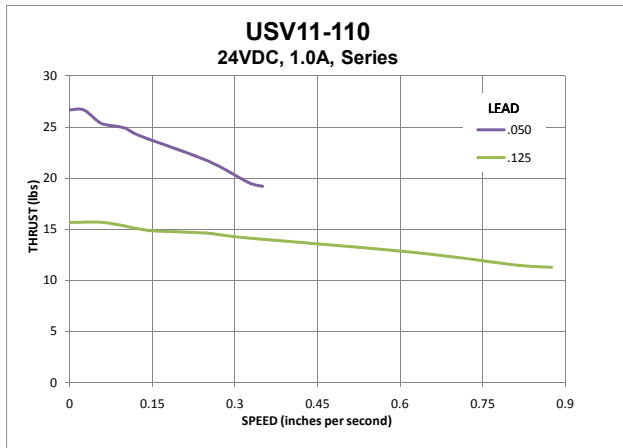
Model Number	Series Voltage V	Series Current A	Series Resistance Ohms	Power Watts	Series Inductance mH	Rotor Inertia oz in sec ² (gm cm ²)	Number of Leads	Weight (Motor only) oz (g)	Length in (mm)
USV11-110XXXXXX	2.1	1.0	2.1	2.1	1.5	1.28 x 10 ⁻⁴ (9)	4	3.9 (110)	1.26 (32.0)
USV17-105XXXXXX	7.6	0.5	15.00	3.7	30.0	4.96 x 10 ⁻⁴ (35)	4	8.0 (227)	1.30 (33.0)
USV17-110XXXXXX	3.8	1.0	3.60	3.6	7.0	4.96 x 10 ⁻⁴ (35)	4	8.0 (227)	1.30 (33.0)
USV17-115XXXXXX	2.5	1.5	1.67	3.8	3.1	4.96 x 10 ⁻⁴ (35)	4	8.0 (227)	1.30 (33.0)
USV23-110XXXXXX	5.0	1.0	5.00	5.0	15.7	1.70 x 10 ⁻³ (120)	4	18.3 (521)	1.75 (44.5)
USV23-120XXXXXX	2.8	2.0	1.40	5.6	4.1	1.70 x 10 ⁻³ (120)	4	18.3 (521)	1.75 (44.5)
USV23-130XXXXXX	1.8	3.0	.60	5.4	1.9	1.70 x 10 ⁻³ (120)	4	18.3 (521)	1.75 (44.5)

CONFIGURE PART NUMBER

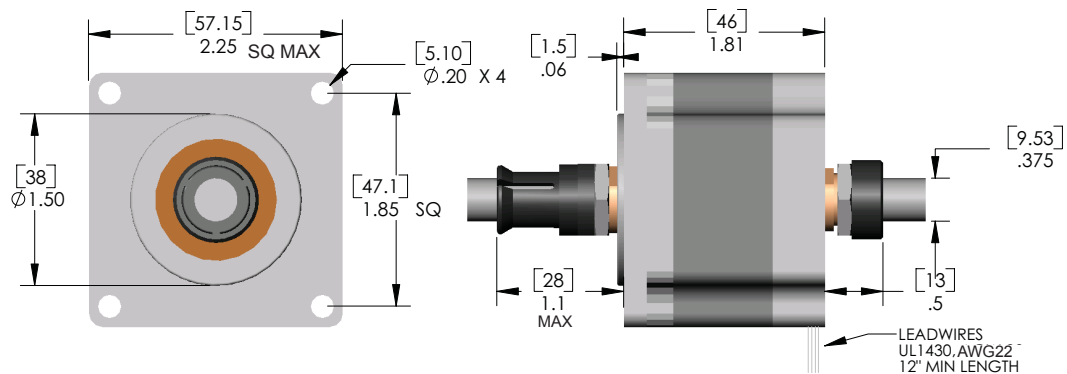
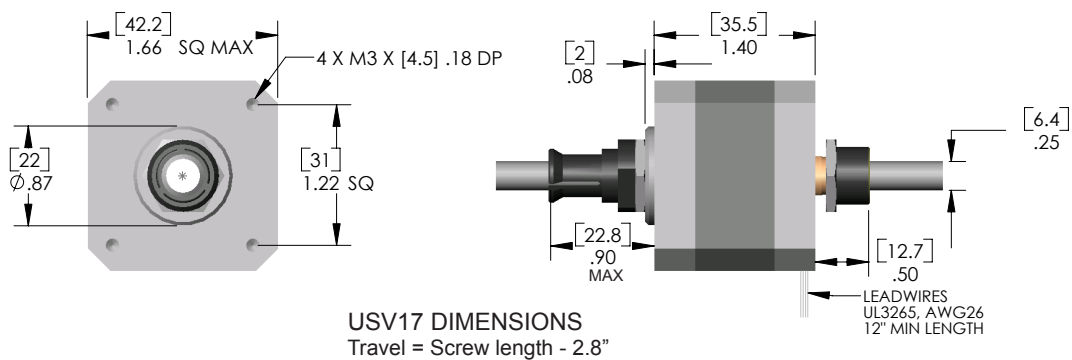
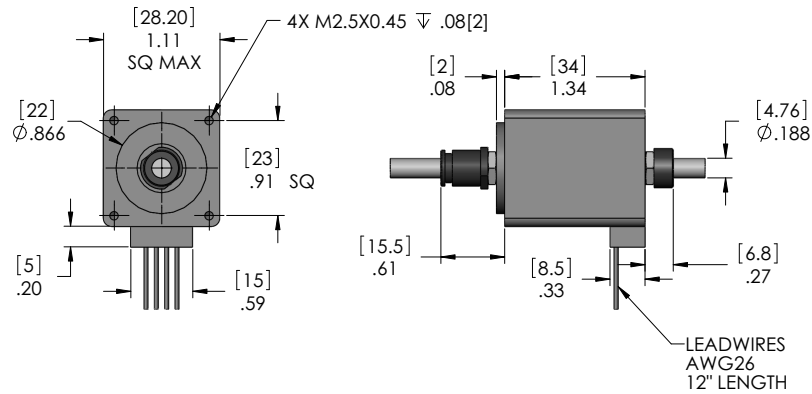




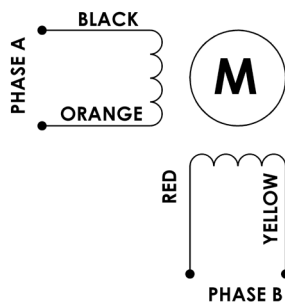
FORCE VS SPEED PERFORMANCE



VERSADRIIVE DRAWINGS



WIRING DIAGRAM



STEP	BLACK	ORANGE	RED	YELLOW
1	+	-	+	-
2	-	+	+	-
3	-	+	-	+
4	+	-	-	+

Switching sequence



LINEAR TRAVEL PER STEP

Model Number	Screw Lead in (mm)	Static Force lb (N)	Dynamic Force ¹ lb (N)	Travel per Full Step ² in (μM)	Travel per Microstep ³ in (μM)	Positioning Accuracy ⁴ in/in (mm/mm)
USV11-1XXXX05XX	.050 (1.27)	32 (143)	27 (120)	.00025 (6.35)	.98 x 10 ⁻⁶ (.0248)	.0004 (.0004)
USV11-1XXXX12XX	.125 (3.18)	20 (89)	16 (71)	.00063 (15.8)	2.44 x 10 ⁻⁶ (.0620)	.0004 (.0004)
USV17-1XXXX05XX	.050 (1.27)	82 (365)	70 (311)	.00025 (6.35)	.98 x 10 ⁻⁶ (.0248)	.0004 (.0004)
USV17-1XXXX10XX	.100 (2.54)	82 (365)	50 (222)	.00050 (12.7)	1.95 x 10 ⁻⁶ (.0496)	.0004 (.0004)
USV17-1XXXX25XX	.250 (6.35)	82 (365)	28 (125)	.00125 (31.8)	4.88 x 10 ⁻⁶ (.1240)	.0004 (.0004)
USV23-1XXXX05XX	.050 (1.27)	165 (734)	150 (667)	.00025 (7.35)	.98 x 10 ⁻⁶ (.0248)	.0004 (.0004)
USV23-1XXXX10XX	.100 (2.54)	165 (734)	128 (569)	.00050 (12.7)	1.95 x 10 ⁻⁶ (.0496)	.0004 (.0004)
USV23-1XXXX25XX	.250 (6.35)	165 (734)	76 (338)	.00125 (31.8)	4.88 x 10 ⁻⁶ (.1240)	.0004 (.0004)
USV23-1XXXX50XX	.500 (12.7)	165 (734)	45 (200)	.00250 (63.5)	9.77 x 10 ⁻⁶ (.2480)	.0004 (.0004)

¹ Max dynamic force at low speeds.
See Force vs. Speed curves.

² Assuming 200 steps per revolution.

³ Assuming a microstep resolution of 51,200 per revolution.

⁴ Using anti-backlash nut.



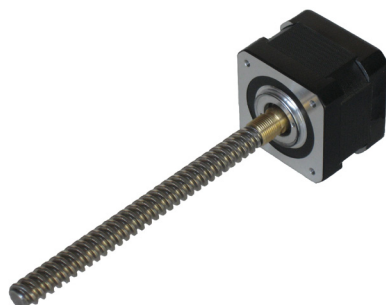
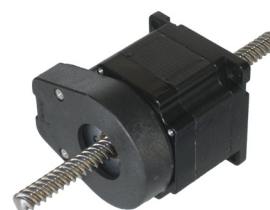
MODIFICATIONS - OPTIONS

USAutomation welcomes the opportunity to customize VersaDrive motors for our OEM customers to better meet your requirements or supply a drop-in solution. Contact us with your ideas and we'll generate the necessary drawings, product specifications and quotes. Here are just a few options we have had experience with:

- Custom motor windings
- Alternate lead configurations - 6 lead, 8 lead
- Longer motor stack lengths
- Custom cabling and/or connectors
- Encoder feedback
- Alternate screw leads
- Machined screw journals to print
- Teflon coating on screw
- Custom drive nut materials or designs
- Subassemblies - VersaDrive as a component



VersaDrive
Encoder option



VersaDrive
Fixed screw option

